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|---------|--------|---|
| NEWS 1  |        | Web Page URLs for STN Seminar Schedule - N. America                     |
| NEWS 2  | Apr 08 | "Ask CAS" for self-help around the clock                                |
| NEWS 3  | Apr 09 | BEILSTEIN: Reload and Implementation of a New Subject Area              |
| NEWS 4  | Apr 09 | ZDB will be removed from STN  |
| NEWS 5  | Apr 19 | US Patent Applications available in IFICDB, IFIPAT, and IFIUDB          |
| NEWS 6  | Apr 22 | Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS           |
| NEWS 7  | Apr 22 | BIOSIS Gene Names now available in TOXCENTER                            |
| NEWS 8  | Apr 22 | Federal Research in Progress (FEDRIP) now available                     |
| NEWS 9  | Jun 03 | New e-mail delivery for search results now available                    |
| NEWS 10 | Jun 10 | MEDLINE Reload  |
| NEWS 11 | Jun 10 | PCTFULL has been reloaded   |
| NEWS 12 | Jul 02 | FOREGE no longer contains STANDARDS file segment                        |
| NEWS 13 | Jul 22 | USAN to be reloaded July 28, 2002;<br>saved answer sets no longer valid |
| NEWS 14 | Jul 29 | Enhanced polymer searching in REGISTRY                                  |
| NEWS 15 | Jul 30 | NETFIRST to be removed from STN   |
| NEWS 16 | Aug 08 | CANCERLIT reload  |
| NEWS 17 | Aug 08 | PHARMAMarketLetter(PHARMAML) - new on STN                               |
| NEWS 18 | Aug 08 | NTIS has been reloaded and enhanced                                     |
| NEWS 19 | Aug 19 | Aquatic Toxicity Information Retrieval (AQUIRE)<br>now available on STN |
| NEWS 20 | Aug 19 | IFIPAT, IFICDB, and IFIUDB have been reloaded                           |
| NEWS 21 | Aug 19 | The MEDLINE file segment of TOXCENTER has been reloaded                 |
| NEWS 22 | Aug 26 | Sequence searching in REGISTRY enhanced                                 |
| NEWS 23 | Sep 03 | JAPIO has been reloaded and enhanced                                    |
| NEWS 24 | Sep 16 | Experimental properties added to the REGISTRY file                      |
| NEWS 25 | Sep 16 | Indexing added to some pre-1967 records in CA/CAPLUS                    |
| NEWS 26 | Sep 16 | CA Section Thesaurus available in CAPLUS and CA                         |
| NEWS 27 | Oct 01 | CASREACT Enriched with Reactions from 1907 to 1985                      |
| NEWS 28 | Oct 21 | EVENTLINE has been reloaded   |
| NEWS 29 | Oct 24 | BEILSTEIN adds new search fields  |
| NEWS 30 | Oct 24 | Nutraceuticals International (NUTRACEUT) now available on STN           |
| NEWS 31 | Oct 25 | MEDLINE SDI run of October 8, 2002                                      |
| NEWS 32 | Nov 18 | DKILIT has been renamed APOLLIT   |
| NEWS 33 | Nov 25 | More calculated properties added to REGISTRY                            |
| NEWS 34 | Dec 02 | TIBKAT will be removed from STN   |
| NEWS 35 | Dec 04 | CSA files on STN  |

NEWS EXPRESS    October 14 CURRENT WINDOWS VERSION IS V6.01,  
                  CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP),  
                  AND CURRENT DISCOVER FILE IS DATED 01 OCTOBER 2002

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NEWS INTER       General Internet Information  
NEWS LOGIN       Welcome Banner and News Items  
NEWS PHONE       Direct Dial and Telecommunication Network Access to STN  
NEWS WWW          CAS World Wide Web Site (general information)

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| ENTRY      | SESSION |
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FULL ESTIMATED COST

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=> s tocopherol(w)cyclase  
L1 19 TOCOPHEROL(W) CYCLASE

=> duplicate remove l1  
DUPLICATE PREFERENCE IS 'AGRICOLA, BIOSIS, EMBASE, CAPLUS'  
KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n  
PROCESSING COMPLETED FOR L1  
L2 12 DUPLICATE REMOVE L1 (7 DUPLICATES REMOVED)

=> d l2 1-12 ti

L2 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2002 ACS  
TI Protein and cDNA sequences of *Anabaena variabilis* **tocopherol cyclase** and uses thereof

L2 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2002 ACS  
TI Transgenic plants carrying expression constructs for seed-specific biosynthesis of sterols and tocopherols

L2 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2002 ACS  
TI cDNAs encoding prenyltransferase and **tocopherol cyclase** and their use in improving tocopherol synthesis in transgenic plants

L2 ANSWER 4 OF 12 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE  
1  
TI Isolation of an Arabidopsis mutant lacking vitamin E and identification of a cyclase essential for all tocopherol biosynthesis.

L2 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2002 ACS  
TI Nucleic acid sequences encoding plant and *Synechocystis* proteins involved in tocopherol synthesis

L2 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2002 ACS  
 TI Design and synthesis of a photoaffinity label for the enzyme  
**tocopherol cyclase**

L2 ANSWER 7 OF 12 AGRICOLA DUPLICATE 2  
 TI Tocopherol synthesis from homogentisate in Capsicum anuum L. (yellow  
 pepper) chromoplast membranes: evidence for **tocopherol**  
**cyclase**.

L2 ANSWER 8 OF 12 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 3  
 TI The substrate specificity of **tocopherol cyclase**.

L2 ANSWER 9 OF 12 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 TI **Tocopherol cyclase** isolated from Chlorella  
 protothecoides, Dunaliella salina and wheat leaves.

L2 ANSWER 10 OF 12 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 4  
 TI The reaction mechanism of chromanol-ring formation catalyzed by  
**tocopherol cyclase** from Anabaena variabilis Kutzing  
 (Cyanobacteria).

L2 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2002 ACS  
 TI **Tocopherol cyclase**, and its manufacture with plant or  
 algae

L2 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2002 ACS  
 TI Identification of the **tocopherol cyclase** in the  
 blue-green algae Anabaena variabilis Kuetzing (cyanobacteria)

=> d 12 1-12 ibib ab

L2 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 2002:615866 CAPLUS  
 DOCUMENT NUMBER: 137:164758  
 TITLE: Protein and cDNA sequences of Anabaena variabilis  
**tocopherol cyclase** and uses thereof  
 INVENTOR(S): Chougnnet, Antoinette; Friedlein, Arno Martin; Woggon,  
 Wolf-Dietrich  
 PATENT ASSIGNEE(S): Roche Vitamins A.-G., Switz.  
 SOURCE: PCT Int. Appl., 61 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.    | KIND   | DATE     | APPLICATION NO. | DATE     |
|---------------|--|----------|-----------------|----------|
| WO 2002063016 | A1   | 20020815 | WO 2002-EP973   | 20020130 |
| W:            | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |          |                 |          |
| RW:           | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG   |          |                 |          |

PRIORITY APPLN. INFO.: EP 2001-102397 A 20010202  
 AB The invention provides the protein and cDNA sequences of Anabaena  
 variabilis **tocopherol cyclase**, a crit. enzyme in the  
 biosynthesis of vitamin E. The invention can be used for the biotechnol.  
 prodn. of vitamin E.

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:594997 CAPLUS

DOCUMENT NUMBER: 137:152492

TITLE: Transgenic plants carrying expression constructs for seed-specific biosynthesis of sterols and tocopherols

INVENTOR(S): Karunanandaa, Balasulojini; Post-Beittenmiller, Martha; Venkatramesh, Mylavarapu; Kishore, Ganesh M.; Thorne, Gregory M.; Ledeaux, John

PATENT ASSIGNEE(S): Monsanto Technology L.L.C., USA

SOURCE: PCT Int. Appl., 271 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE       |
|---|------|----------|-----------------|------------|
| WO 2002061072   | A2   | 20020808 | WO 2002-US255   | 20020104   |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |      |          |                 |            |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  |      |          |                 |            |
| PRIORITY APPLN. INFO.:  |      |          | US 2001-260114P | P 20010105 |
|   |      |          | US 2001-885723  | A 20010620 |

AB Expression constructs for 3-hydroxy-3-methylglutaryl-CoA reductase and at least one other enzyme of sterol biosynthesis are described for use in the engineering of patterns of sterol biosynthesis. Also disclosed are methods for using such constructs to alter sterol prodn. and content in cells, plants, seeds and storage organs of plants. Also provided are oils and compns. contg. altered sterol levels produced by use of the disclosed constructs. Novel nucleotide sequences useful in the alteration of sterol prodn. are also provided. Also provided are cells, plants, seeds and storage organs of plants comprising sequences encoding 3-hydroxy-3-methylglutaryl-CoA reductase, at least one other sterol synthesis pathway enzyme and at least one tocopherol synthesis enzyme.

L2 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:315078 CAPLUS

DOCUMENT NUMBER: 136:320416

TITLE: cDNAs encoding prenyltransferase and

**tocopherol cyclase** and their use in

INVENTOR(S): improving tocopherol synthesis in transgenic plants  
Lassner, Michael W.; Savidge, Beth; Weiss, James D.;

Mitsky, Timothy A.; Post-Beittenmiller, Martha Ann;

Valentin, Henry E.

PATENT ASSIGNEE(S): Monsanto Technology LLC, USA

SOURCE: PCT Int. Appl., 148 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

WO 2002033060 A2 20020425 WO 2001-US42673 20011012  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,  
 RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ,  
 VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 AU 2002013478 A5 20020429 AU 2002-13478 20011012  
 PRIORITY APPLN. INFO.: US 2000-688071 A 20001014  
 WO 2001-US42673 W 20011012  
 AB Nucleic acid sequences and methods are provided for producing plants and  
 seeds having altered tocopherol content and compns. In particular, the  
 invention provides nucleic acid and polypeptide sequences of  
 prenyltransferase and **tocopherol cyclase** of  
 Arabidopsis. The methods find particular use in increasing the tocopherol  
 and tocotrienol levels by increasing the biosynthetic flux in plants, and  
 in providing desirable tocopherol compns. in a host plant cell. A natural  
 tocopherol-rich and deodorized oil is provided that is produced by distg.  
 a crude soybean oil under low pressure and high temp., wherein the refined  
 oil (degummed and bleached) has a reduced content of free fatty acids and  
 a higher amt. of tocopherol. Claimed sequences in SEQIDs 95-110 were not  
 present at the time of publication.  
 L2 ANSWER 4 OF 12 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE  
 1  
 ACCESSION NUMBER: 2002:570733 BIOSIS  
 DOCUMENT NUMBER: PREV200200570733  
 TITLE: Isolation of an Arabidopsis mutant lacking vitamin E and  
 identification of a cyclase essential for all tocopherol  
 biosynthesis.  
 AUTHOR(S): Porfirova, Svetlana; Bergmueller, Eveline; Tropf, Susanne;  
 Lemke, Rainer; Doermann, Peter (1)  
 CORPORATE SOURCE: (1) Department of Lothar Willmitzer, Max Planck Institute  
 of Molecular Plant Physiology, Am Muehlenberg 1, 14476,  
 Golm: doermann@mpimp-golm.mpg.de Germany  
 SOURCE: Proceedings of the National Academy of Sciences of the  
 United States of America, (September 17, 2002) Vol. 99, No.  
 19, pp. 12495-12500. <http://www.pnas.org>. print.  
 ISSN: 0027-8424.  
 DOCUMENT TYPE: Article  
 LANGUAGE: English  
 AB Tocopherol (vitamin E) is a plant chloroplast lipid presumed to be  
 involved in the response to oxidative stress. A tocopherol-deficient  
 mutant (vte1) was isolated from Arabidopsis thaliana by using a TLC-based  
 screening approach. Mutant plants lacked all four tocopherol forms and  
 were deficient in **tocopherol cyclase** activity. Genetic  
 mapping of vte1 and a genomics-based approach led to the identification of  
 the ORF At4g32770 as a candidate gene for **tocopherol**  
**cyclase**. In vte1, At4g32770 contains a splicing site mutation and  
 the corresponding mRNA expression is reduced. Expression of VTE1 in  
 Escherichia coli resulted in the production of a protein with high  
**tocopherol cyclase** and tocotrienol cyclase activity. The  
 VTE1 sequence shows no similarities to genes with known function, but is  
 similar to that of SXD1, a gene that was recently isolated based on the  
 availability of the sucrose export defectivel maize mutant (sxd1). Growth  
 of the vte1 mutant, chlorophyll content, and photosynthetic quantum yield  
 were similar to wild type under optimal growth conditions. Therefore,  
 absence of tocopherol has no large impact on photosynthesis or plant  
 viability, suggesting that other antioxidants can compensate for the loss  
 of tocopherol. During photo-oxidative stress, chlorophyll content and

photosynthetic quantum yield were slightly reduced in vtel as compared with wild type indicating a potential role for tocopherol in maintaining an optimal photosynthesis rate under high-light stress.

L2 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:781105 CAPLUS

DOCUMENT NUMBER: 135:340226

TITLE: Nucleic acid sequences encoding plant and Synechocystis proteins involved in tocopherol synthesis

INVENTOR(S): Subramaniam, Sai S.; Slater, Steven C.; Karberg, Katherine; Chen, Ridong; Valentin, Henry E.; Wong, Yun-Hua Huang

PATENT ASSIGNEE(S): Monsanto Technology LLP, USA

SOURCE: PCT Int. Appl., 166 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE      | APPLICATION NO. | DATE     |
|---------------|------|-----------|-----------------|----------|
| WO 2001079472 | A2   | 200111025 | WO 2001-US12334 | 20010413 |
| WO 2001079472 | A3   | 20020606  |                 |          |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2000-549848 A 20000414

US 2000-688069 A 20001014

AB Nucleic acid sequences and methods are provided for producing plants and seeds having altered tocopherol content and compns. A prenyltransferase from *Porphyra purpurea* was used as a query to identify identify straight-chain class prenyltransferases in public and proprietary databases, particularly from *Arabidopsis thaliana* and *Synechocystis*. The *Escherichia coli* *ubiA* enzyme involved in ubiquinone synthesis was used as a starting sequence to generate an arom. prenyltransferase profile. In particular, **tocopherol cyclase** enzymes are identified which form tocopherol from 2,3-dimethyl-5-phytylplastoquinol or form tocotrienols from 2,3-dimethyl-5-geranylgeranylplastoquinol. The methods find particular use in increasing the tocopherol levels in plants, and in providing desirable tocopherol compns. in a host plant cell.

L2 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:54890 CAPLUS

DOCUMENT NUMBER: 134:262716

TITLE: Design and synthesis of a photoaffinity label for the enzyme **tocopherol cyclase**

AUTHOR(S): Woggon, Wolf-D.; Fogliato, Giovanni; Derungs, Giuseppe

CORPORATE SOURCE: Institut fA Organische Chemie, Universitat Basel, Basel, CH-4056, Switz.

SOURCE: Proceedings of ECSOC-1: The First International Electronic Conference on Synthetic Organic Chemistry; [and] Proceedings of ECSOC-2: The Second International Electronic Conference on Synthetic Organic Chemistry, Sept. 1-30, 1997, 1998 (1999), Meeting Date 1997-1998, 205-208. Editor(s): Lin, Shu-Kun; Pombo-Villar, Esteban. Molecular Diversity Preservation

International: Basel, Switz.  
CODEN: 69ASBO  
DOCUMENT TYPE: Conference; (computer optical disk)  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 134:262716  
AB A mechanism based, photoaffinity labeled inhibitor of the enzyme  
**tocopherol cyclase** was synthesized.  
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 7 OF 12 AGRICOLA DUPLICATE 2  
ACCESSION NUMBER: 1999:51339 AGRICOLA  
DOCUMENT NUMBER: IND21994415  
TITLE: Tocopherol synthesis from homogentisate in Capsicum  
anuum L. (yellow pepper) chromoplast membranes:  
evidence for **tocopherol cyclase**.  
AUTHOR(S): Arango, Y.; Heise, K.P.  
CORPORATE SOURCE: Universitat Gottingen, Gottingen, Germany.  
AVAILABILITY: DNAL (QP501.B64)  
SOURCE: The Biochemical journal, Dec 15, 1998. Vol. 336, No.  
pt.3. p. 531-533  
Publisher: London, U.K. : Portland Press Ltd.  
CODEN: BIJOAK; ISSN: 0264-6021  
NOTE: Includes references  
PUB. COUNTRY: England; United Kingdom  
DOCUMENT TYPE: Article  
FILE SEGMENT: Non-U.S. Imprint other than FAO  
LANGUAGE: English

L2 ANSWER 8 OF 12 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 3  
ACCESSION NUMBER: 97271800 EMBASE  
DOCUMENT NUMBER: 1997271800  
TITLE: The substrate specificity of **tocopherol**  
**cyclase**.  
AUTHOR: Stocker A.; Fretz H.; Frick H.; Ruttimann A.; Woggon W.-D.  
CORPORATE SOURCE: A. Stocker, Organisch-Chemisches Institut, Universitat  
Zurich, Winterthurerstr. 190, CH-8057 Zurich, Switzerland  
SOURCE: Bioorganic and Medicinal Chemistry, (1996) 4/7 (1129-1134).  
ISSN: 0968-0896 CODEN: BMECEP  
COUNTRY: United Kingdom  
DOCUMENT TYPE: Journal; Article  
FILE SEGMENT: 004 Microbiology  
LANGUAGE: English  
SUMMARY LANGUAGE: English  
AB The substrate specificity of the enzyme **tocopherol**  
**cyclase** from the blue-green algae *Anabaena variabilis*  
(Cyanobacteria) was investigated with 11 substrate analogues revealing the  
significance of three major recognition sites: (i) the OH group at C(1) of  
the hydroquinone, (ii) the (E) configuration of the double bond, and (iii)  
the length of the lipophilic side chain. Experiments with two affinity  
matrices suggest that substrates approach the enzyme's active site with  
the hydrophobic tail.

L2 ANSWER 9 OF 12 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
ACCESSION NUMBER: 2002:20774 BIOSIS  
DOCUMENT NUMBER: PREV200200020774  
TITLE: **Tocopherol cyclase** isolated from  
*Chlorella protothecoides*, *Dunaliella salina* and wheat  
leaves.  
AUTHOR(S): Gruninger, F.; Hochuli, E.; Matzinger, P. K.  
CORPORATE SOURCE: Arlesheim Switzerland  
ASSIGNEE: HOFFMANN-LA ROCHE INC.  
PATENT INFORMATION: US 5432069 July 11, 1995  
SOURCE: Official Gazette of the United States Patent and Trademark

DOCUMENT TYPE: Patent  
LANGUAGE: English

L2 ANSWER 10 OF 12 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 4  
ACCESSION NUMBER: 94339752 EMBASE

DOCUMENT NUMBER: 1994339752  
TITLE: The reaction mechanism of chromanol-ring formation  
catalyzed by **tocopherol cyclase** from

AUTHOR: Anabaena variabilis Kutzing (Cyanobacteria).  
Stocker A.; Netscher T.; Ruttimann A.; Muller R.K.;  
Schneider H.; Todaro L.J.; Derungs G.; Woggon W.-D.

CORPORATE SOURCE: Organisch-chemisches Institut, Universitat Zurich,  
Winterthurerstrasse 190, CH-8057 Zurich, Switzerland

SOURCE: Helvetica Chimica Acta, (1994) 77/7 (1721-1737).  
ISSN: 0018-019X CODEN: HCACAV

COUNTRY: Switzerland

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 023 Nuclear Medicine  
029 Clinical Biochemistry  
037 Drug Literature Index

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Incubation of the synthetic 180-labelled phytyl-hydroquinone (04-180)-2  
with the **tocopherol cyclase** from Anabaena variabilis  
Kutzing (Cyanobacteria) in D2O furnished the doubly labelled  
.gamma.-tocopherol, (2R,3S,4'R,8'R)-(1-180,3-2H)-1. The chirality at C(3)  
was determined by two independent routes providing interlocking evidence  
that the enzyme-catalyzed ring closure proceeds by si-protonation of the  
double bond of 2 and concomitant re-attack of the phenolic O-atom.

L2 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1993:250687 CAPLUS

DOCUMENT NUMBER: 118:250687

TITLE: **Tocopherol cyclase**, and its  
manufacture with plant or algae  
INVENTOR(S): Grueninger, Fiona; Hochuli, Erich; Matzinger, Peter  
Karl

PATENT ASSIGNEE(S): Hoffmann-La Roche, F., AG, Switz.

SOURCE: Eur. Pat. Appl., 22 pp.  
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.                                    | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| EP 531639                                     | A2   | 19930317 | EP 1992-110874  | 19920626 |
| EP 531639                                     | A3   | 19940427 |                 |          |
| EP 531639                                     | B1   | 19990901 |                 |          |
| R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL |      |          |                 |          |
| AT 184048                                     | E    | 19990915 | AT 1992-110874  | 19920626 |
| JP 05192143                                   | A2   | 19930803 | JP 1992-212416  | 19920717 |
| US 5432069                                    | A    | 19950711 | US 1992-916235  | 19920717 |
| PRIORITY APPLN. INFO.:                        |      |          | EP 1991-112006  | 19910718 |
|   |      |          | EP 1992-110874  | 19920626 |

AB The **tocopherol cyclase** (I), useful for  
enantioselective prepn. of R',R',R'-tocopherol from phytyl benzoquinol  
derivs., is manufd. by culturing the plant or algae cells, and chromatog.  
isolation from the cells. Chromatog. isolation of I having a mol. wt. of  
48 or 50 kDa from Chorella protothecoides was shown.



L2 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1993:577284 CAPLUS

DOCUMENT NUMBER: 119:177284

TITLE: Identification of the **tocopherol cyclase** in the blue-green algae *Anabaena variabilis* Kuetzing (cyanobacteria)  
AUTHOR(S): Stocker, Achim; Ruettimann, August; Woggon, Wolf  
Dietrich

CORPORATE SOURCE: Org.-Chem. Inst., Univ. Zurich, Zurich, CH-8057,  
Switz.

SOURCE: Helvetica Chimica Acta (1993), 76(4), 1729-38  
CODEN: HCACAV; ISSN: 0018-019X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Incubation of spheroplasts of *A. variabilis* with the 2,3-dimethyl-5-phytylhydroquinone (I)-2,6-O-dimethyl-.beta.-cyclodextrin complex revealed the presence of a hitherto unknown enzyme (**tocopherol cyclase**) which catalyzes the cyclization of I to give enantiomerically pure .gamma.-tocopherol in .gtoreq.93% yield.

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